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A New Species of *Tetranychus* (Acari, Tetranychidae) from the Ryukyu Islands

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Abstract *Tetranychus okinawanus* sp. nov. (Acari, Tetranychidae) is described from *Pueraria lobata* (WILLD.) OHWI in Okinawa Island. This new species also occurs on sweet potato in Oujima Island, and on *Solanum nigrum* L. and *Phaseolus vulgaris* L. in Ishigaki Island.

Key words: Acari; new species; Okinawa; Tetranychidae; *Tetranychus okinawanus*.

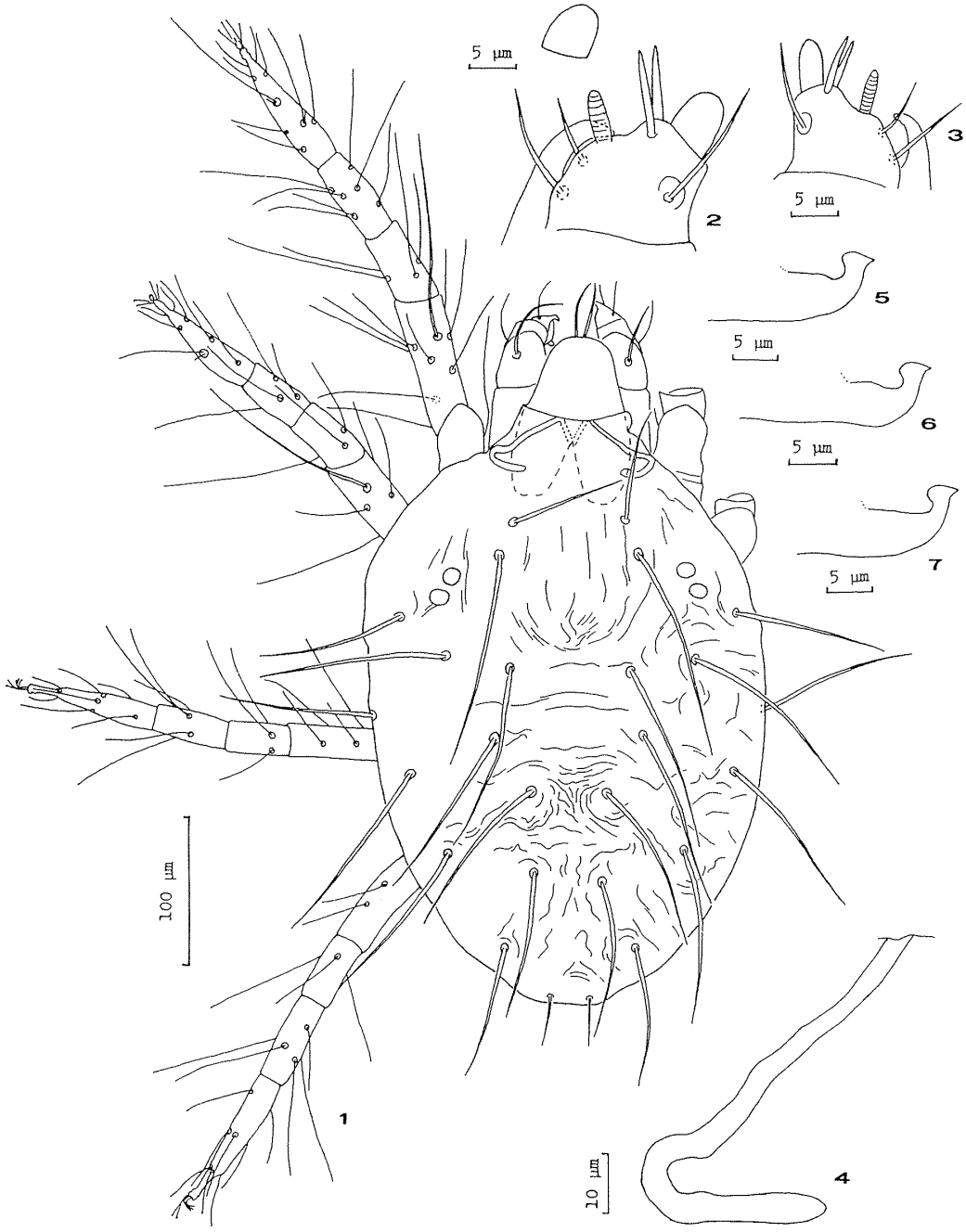
Mites of a *Tetranychus* species resembling *T. kanzawai* KISHIDA were collected from *Pueraria lobata* (WILLD.) OHWI in Okinawa Island by Mr. Seiichi MORIYA, and they were reared on *Phaseolus vulgaris* L. in laboratories of Kyoto University and Ibaraki University. A part of the materials on which the present paper is based was taken by Dr. Tetsuo GOTOH in the laboratory stock of Ibaraki University. Specimens from Oujima I. and Ishigaki I. have also been available. A close examination has revealed that this species has so far been undescribed. Description of the new species is given below. The terminology follows that of EHARA and THO (1988).

Tetranycus okinawanus sp. nov.

(Japanese name: Nangoku-hadani)

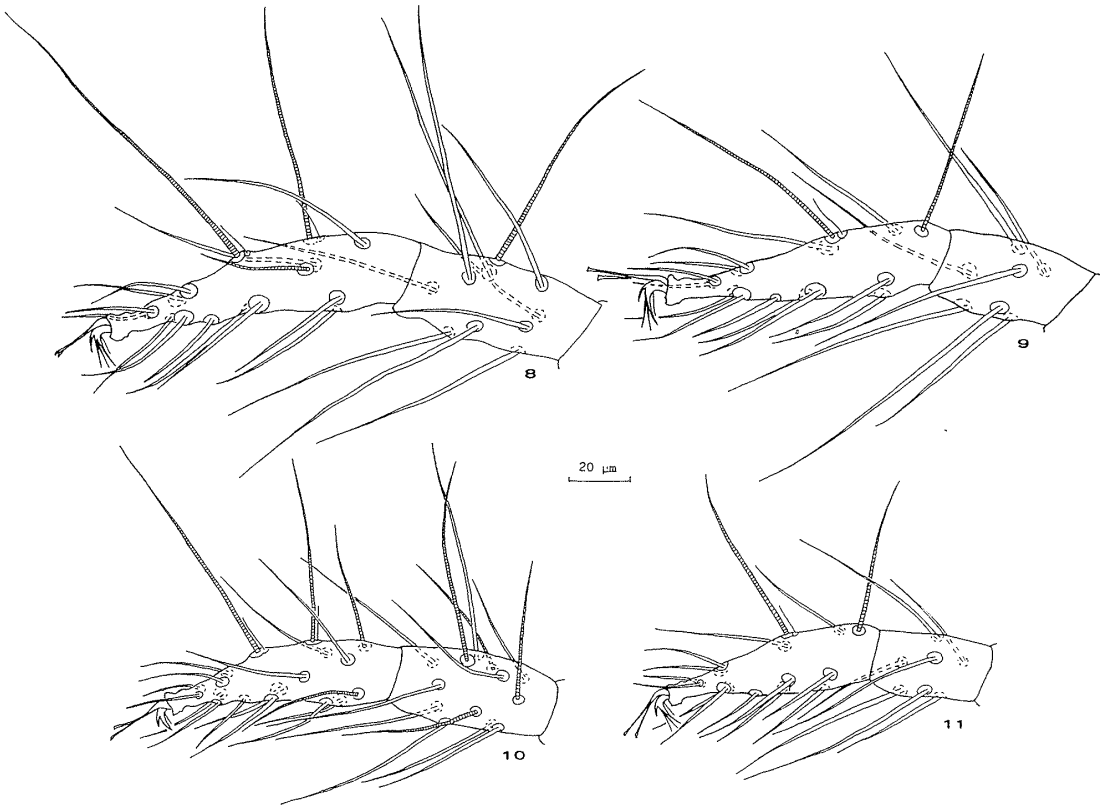
(Figs. 1–13)

Female. Body, including rostrum, 476 μm long, 266 μm wide, red in colour. Dorsal setae on idiosoma slender, pubescent, much longer than distance between consecutive setae; lengths of setae (μm; mean$\pm$S.E., n=10): P1 80.6$\pm$0.9, P2 156.5$\pm$1.6, P3 110.6$\pm$2.0, H 120.4$\pm$1.8, C1 134.3$\pm$1.7, C2 130.9$\pm$1.7, C3 123.5$\pm$1.5, C4 112.4$\pm$1.7, L1 132.3$\pm$1.4, L2 133.7$\pm$1.8, L3 127.1$\pm$2.1, L4 97.8$\pm$1.7, CL 47.4$\pm$1.1. Hysterosoma with longitudinal striae between pair of setae C3 and between pair of C4, forming a diamond-shaped figure between these setae; lobes on dorsal hysterosomal striae very variable in shape, mostly rounded. Peritremes strongly hooked distally. Pregenital area with longitudinal striae, the striae broken medially, solid laterally; genital flap with longitudinal striae on anterior part, with transverse striae on posterior part. Palpus with spinneret slightly longer than broad; dorsal sensillum fusi-

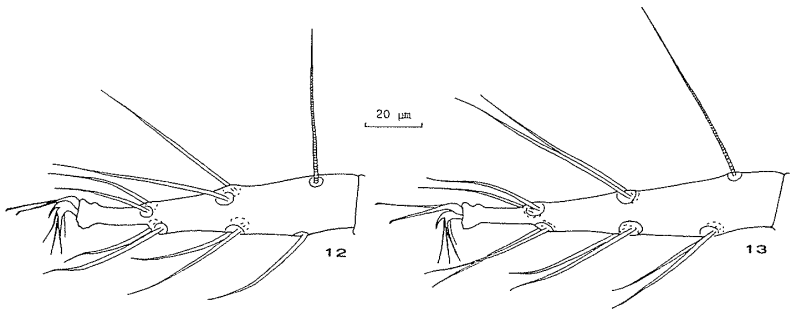


Figs. 1–7. *Tetranychus okinawanus* sp. nov. —— 1, Dorsum of female; 2, distal segment of palpus of female, showing variation of spinneret; 3, distal segment of palpus of male; 4, peritreme of female; 5–7, aedeagi.

form, approximately as long as spinneret. The number of setae and solenidia (in parentheses) on leg segments: femora 10–6–4–4, genua 5–5–4–4, tibiae 9(1)–7–6–7, tarsi 13(1)+2 dupl.–13(1)+1 dupl.–9(1)–10(1). Tarsus I with 3 tactile setae proximal to proximal set of duplex setae, with 1 tactile seta and



Figs. 8–11. *Tetranychus okinawanus* sp. nov. —— 8, Tarsus and tibia I of female; 9, tarsus and tibia II of female; 10, tarsus and tibia I of male; 11, tarsus and tibia II of male.



Figs. 12–13. *Tetranychus okinawanus* sp. nov. —— 12, Tarsus III of female; 13, tarsus IV of female.

1 solenidion at or near the level of the proximal duplex set; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae. Tarsi III and IV each with solenidion proximal, extending almost to mediodistal tactile setae. Each empodium composed of 3 pairs of hairs and 1 pair of somewhat shorter, proximoventral filaments, with a strong mediodorsal spur.

Male. Body, including rostrum, 434 μm long, 213 μm wide. Lengths of setae (μm, n=10): P1 55.2±0.7, P2 102.0±1.6, P3 75.6±0.9, H 86.0±1.0, C1

87.9±1.0, C2 88.2±1.1, C3 83.6±1.2, C4 64.2±1.1, L1 89.3±1.1, L2 89.9±0.8, L3 87.8±1.1, L4 54.2±0.7, CL 21.9±0.4. Aedeagus upturned distally; terminal knob 3.5 μm long, much longer than the width of neck, approximately one half as long as dorsal margin of shaft, the axis of knob subparallel with dorsal margin of shaft; anterior projection of knob broadly rounded, the posterior projection very narrow, acute. Palpus with spinneret about twice as long as broad; dorsal sensillum slender, fusiform. The number of setae and solenidia (in parentheses) on leg segments: femora 10–6–4–4, genus 5–5–4–4, tibiae 9(4)–7–6–7, tarsi 13(3)+2 dupl.–13(1)+1 dupl.–9(1)–10(1). Tarsus I with 3 tactile setae and 2 solenidia proximal to proximal set of duplex setae, with 1 tactile seta and 1 solenidion at or near the level of the proximal duplex set; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae. Empodium I with 1 pair of claw-like divisions and 1 pair of somewhat shorter, proximoventral filaments, and with a strong mediodorsal spur; empodia II–IV each consisting of 3 pairs of hairs and 1 pair of proximoventral filaments, with a strong mediodorsal spur.

Type series. Holotype: ♂, 20–22-XI-1993 (T. GOTOH), reared in Laboratory of Appl. Entomol. & Zool., Ibaraki Univ. (host in laboratory, *Phaseolus vulgaris* L.), originally collected at Shuri, Naha, Okinawa Island, 21-VIII-1993 (S. MORIYA), on *Pueraria lobata* (WILLD.) OHWI. Paratypes: 7♂♂ & 10♀♀, with the above data; 13♀♀, 24-XI-1994 (T. GOTOH), other data the same as for the holotype. The type series is deposited in the Department of Biology, Faculty of Education, Tottori University.

In addition to the type series, the following specimens from Okinawa Prefecture were examined: Two ♂♂ & 6♀♀, 24-XI-1994 (T. GOTOH), reared in Lab. of Appl. Entomol. & Zool., Ibaraki Univ. (host in lab., *Phaseolus vulgaris*), originally collected in Oujima I., 17-VIII-1994 (T. KOHAMA), on sweet potato; 4♂♂ & 4♀♀, 18-IX-1994 (M. MOCHIZUKI), reared in Nat. Res. Inst. Veg., Ornam. Plants & Tea, Kanaya (host in lab., *Phaseolus vulgaris*), originally collected in Ishigaki I., 12-XII-1993 (M. MOCHIZUKI), on *Solanum nigrum* L.; 3♂♂ & 5♀♀, original host, *Phaseolus vulgaris* in Ishigaki I., other data the same as for the above.

Remarks. *Tetranychus okinawanus* is superficially similar to a Japanese common species, *T. kanzawai* KISHIDA, 1927, but differs from the latter in the shape and size of the terminal knob of the aedeagus, and in the strong mediodorsal spurs of the female empodia (EHARA, 1956, 1960; EHARA & MASAKI, 1989). In fact, *T. okinawanus* is close to *T. gloveri* BANKS, 1900 (U.S.A.) and *T. bambusicola* EHARA, 1988 (Malay Peninsula). However, this new species is characterized in that the solenidion on tarsus III of female reaches only to the mediodistal tactile setae, whereas in *gloveri* the solenidion extends almost to the tip of the tarsus (BAKER & TUTTLE, 1994). Moreover, the new species is

distinguished from *bambusicola* by that the empodia of both sexes are provided with a pair of long proximoventral filaments (EHARA & THO, 1988).

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